

WHAT IS CLAIMED IS:

- 1        1. (Original) A spacerless or geocomposite double bottom apparatus for a storage  
2        tank having a metal bottom and upwardly extending metal sidewalls, which apparatus  
3        comprises:
  - 4              a first lining layer of flexible plastic on top of said metal bottom;
  - 5              a plastic grid having a plurality of openings therethrough on top of said first  
6        lining layer;
  - 7              at least one layer of fiber insulation on top of said grid; and
  - 8              an upper metal bottom on top of said fiber material welded to said sidewalls.
- 1        2. (Original) A double bottom apparatus as set forth in Claim 1 wherein said  
2        first lining layer is a high density polyethylene sheer.
- 1        3. (Original) A double bottom apparatus as set forth in Claim 1 wherein said  
2        plastic grid is composed of high density polyethylene.
- 1        4. (Original) A double bottom apparatus as set forth in Claim 1 wherein said  
2        fiber insulation is mechanically bonded mineral or glass wool.
- 1        5. (Original) A double bottom apparatus as set forth in Claim 4 including two  
2        layers of said mechanically bonded mineral or glass wool.

3           6. (Original) A double bottom apparatus as set forth in Claim 1 wherein said  
4       upper bottom extends through slots in said sidewalls and is welded thereto by welding to a  
5       flat bar extending from said sidewalls.

1           7. (Original) A double bottom apparatus as set forth in Claim 6 wherein all  
2       welds are made from above said upper bottom.

1           8. (Original) A double bottom apparatus as set forth in Claim 1 including a leak  
2       detection port through said sidewalls between said original bottom and said upper bottom.

1           9. (Original) A double bottom apparatus as set forth in Claim 7 wherein said  
2       leak detection port includes a clear cylindrical tube so that fluid therein is visible.

1           10. (Original) A double bottom apparatus as set forth in Claim 1 wherein a fluid  
2       tight containment space is created between said upper bottom, said sidewalls, and said first  
3       lining layer.

1           11. (Original) A double bottom apparatus as set forth in Claim 10 wherein said  
2       fluid tight containment space is purged of oxygen.

1           12. (Original) A double bottom apparatus as set forth in Claim 11 wherein said  
2       lining layer is fastened to said metal bottom by a plurality of fasteners.

1           13. (Original) A double bottom apparatus for a storage tank as set forth in Claim  
2         1 including a sealant between said first lining and said sidewalls.

1           14. (Withdrawn) A method of installing a spacerless double bottom for a storage  
2         tank having a metal bottom and upwardly extending sidewalls, which method comprises the  
3         steps of:

4                 installing a first lining layer of flexible plastic on top of said metal bottom;  
5                 Installing a plastic grid having a plurality of openings therethrough on top of  
6         said lining layer;  
7                 installing at least one layer of fiber insulation on top of said grid; and  
8                 installing a new upper metal bottom above said natural fiber material.

1           15. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2         set forth in Claim 14 including the additional step of affixing said lining layer to said metal  
3         bottom.

1           16. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2         set forth in Claim 14 wherein said step of installing at least one layer of fiber insulation  
3         includes installing two layers of said fiber insulation.

1           17. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2         set forth in Claim 14 wherein said step of installing a new upper metal bottom includes the  
3         steps of cutting a plurality of openings through said sidewalls, inserting a plurality of flat

4 plates in said tank and through said sidewalls, and welding said flat plates to said sidewalls.

1        18. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2 set forth in Claim 17 wherein all welding is performed from above said flat plates.

1        19. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2 set forth in Claim 14 wherein said flat plates are welded to flat bars previously welded and  
3 extending from said sidewalls.

1        20. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2 set forth in Claim 14 wherein said lining layer, said sidewalls and said upper bottom form a  
3 fluid-tight secondary container and including the additional step of purging said container of  
4 oxygen.

1        21. (Withdrawn) A method of installing a spacerless double bottom apparatus as  
2 set forth in Claim 14 including the additional step of installing a leak detection port  
3 through said sidewalls.